

Effect of acidic waste water on mortar and concrete

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Abstract:

A major consequence of environmental degradation is the adverse effect of pollution on building materials. With the growing contamination of water by industrial and domestic waste, building material, especially concrete and mortar are becoming increasingly prone to aggressive chemical attack. Concrete is susceptible to attack by salts, acids and gaseous pollutants. The presence of such impurities mainly acids, chlorides and sulphates in industrial waste cause deterioration of mortar and concrete to a large extent.

In the present investigation a comparative study was carried out on behavior of concrete and mortar cubes exposed to contaminated water of different pH. The concrete cubes of size 15 cm and mortar cube of size 10 cm were cast and placed in waste water of pH 3, 5, domestic waste of pH 7.6 and pure tap water of pH = 7.0. The parameters studied include compressive strength, porosity, water absorption and pH of affected concrete and mortar. The tests were carried out at different ages viz. 33, 66, 103 and 119 days. The results of tests on specimens under the above exposures were compared to those of specimens placed in tap water.